

## CLAIMS

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

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5        A chain, such as for use in a conveyor assembly, comprising:  
            a male link;  
            a polymeric bushing secured to said male link;  
            a female link movable secured to said male link, said female link secured to said  
            male link by a connector member, said connector member secured to said female link and  
            extending through said bushing, said connector member having a surface engaging said  
10     bushing; and  
            a diamond-like coating disposed on said surface of said connector member to  
            provide a low wear interface between said bushing and said connector member.

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15     The chain of claim 1 wherein said connector member includes a cylindrical shaft  
            extending through said bushing, said diamond-like coating being applied to said shaft.

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The chain of claim 2 wherein said bushing defines a semi-circular void receiving  
said shaft, an inner diameter of said void corresponding to said outer diameter of said shaft.

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20     The chain of claim 3 wherein said male link is annular defining a longitudinally  
            extending internal void and wherein connector members of adjacent female links extend

through opposite ends of said void, said male link include a bushing disposed at each of said opposite ends of said void.

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The chain of claim 4 wherein at least one of said bushings is fitted within a  
5 corresponding recess in said male link, said recess and said bushing being shaped to preclude  
movement of said bushing with respect to said male link.

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The chain of claim 5 wherein at least one of said bushings is manufactured from  
a nylon.

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10 The chain of claim 5 wherein at least one of said bushings is manufactured from  
a nylon containing strength and rigidity enhancing additives.

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The chain of claim 5 wherein at least one of said bushings is manufactured from  
15 a nylon containing Molybdenum disulphide.

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The chain of claim 5 wherein said diamond-like coating is a thin carbon film  
layer.

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20 A chain comprising:  
a male link;  
a female link disposed adjacent to said male link;

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a connector means for securing said male link to said female link, said connector means including interfacing first and second components that move with respect to one another as said male link moves with respect to said female link, said first component including a surface coated with a diamond-like coating, said second component including a polymeric material engaging said surface coated with said diamond-like coating.

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The chain of claim 10 wherein said connector means includes a pin having a shaft, said surface being further defined as said shaft of said pin.

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The chain of claim 11 wherein said connector means includes a bushing surrounding at least a portion of said shaft, said bushing being said polymeric material engaging said surface.

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The chain of claim 12 wherein- said bushing is manufactured from a polymeric material containing strength and rigidity enhancing additives.

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The chain of claim 12 wherein said bushing is manufactured from a nylon containing Molybdenum disulphide.

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The chain of claim 13 wherein said bushing is secured to said male link.

The chain of claim 15 wherein said bushing defines a substantially semicircular void, said shaft being rotatably seated within said void.

5        A conveyor chain, which comprises:  
            a male link including a pair of opposing arcs disposed toward opposite ends of  
            said male link;  
            a polymeric bushing fitted within each of said male link arcs;  
            female links mounted to opposite ends of said male link, each including top and  
            bottom plates;  
            connector members securing each of said female links to said male link, each  
            connector member including a shaft extending between said top plate and said bottom plate  
            through said bushing, said shaft being capable of rotation movement with respect to said  
            bushing; and  
            a diamond-like coating disposed on said shaft of said connector member to  
15        reduce wear at the interface of said bushing and said connector member.

The conveyor chain of claim 17, wherein said bushing and said male link are configured to preclude rotational movement of said bushing with respect to said bushing.

The conveyor chain of claim 18 wherein said connector members and said female links are configured to preclude rotational movement of said connector members with respect to said female links.

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The conveyor chain of claim 19 wherein said diamond-like coating is a thin, carbon film coating.

10      polymeric material containing strength and rigidity enhancing additives.

The conveyor chain of claim 20 wherein said bushing is manufactured from a nylon containing Molybdenum disulphide.

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A long-wear interface assembly comprising:

a first member;

a second member mounted adjacent said first member, said second member capable of movement relative to said first member, said first member including a surface engaging said second member, said surface coated with a diamond-like coating, said second

20      member including a polymeric material engaging said surface coated with said diamond-like coating.

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The assembly of claim 23 wherein said first member includes a shaft, said shaft including an outer surface coated with a diamond-like coating.

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5 The assembly of claim 24 wherein said second member includes a bushing, said bushing manufactured from a polymeric material.

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The assembly of claim 25 wherein said diamond-like coating is a thin, carbon film coating.

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The assembly of claim 26 wherein- said bushing is manufactured from a polymeric material containing strength and rigidity enhancing additives.

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The assembly of claim 26 wherein said bushing is manufactured from a nylon 15 containing Molybdenum disulphide.

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A bearing assembly comprising:

a first part defining an annular raceway;

a second part defining an annular raceway and being disposed adjacent to said

20 first ring;

a plurality of bearings disposed between said first part and said second part, said bearings riding within said raceways and permitting relative movement between said first part

and said second part, either of said bearings or said raceways including a polymeric material and the other being coated with a diamond-like coating, whereby said polymeric material engages said coating at an interface between said bearings and said raceways.

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5       The bearing assembly of claim 29 wherein said bearings are coated with said diamond-like coating and said raceways include said polymeric material, said bearings engaging and riding along said polymeric material.

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The bearing assembly of claim 30 wherein at least one of said first part and said 10      second part is manufactured from said polymeric material.

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The bearing assembly of claim 30 wherein at least one of said first part and said second part includes a bushing defining said raceway, said bushing being manufactured from said polymeric material.

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15       The bearing assembly of claim 29 wherein said bearings are manufactured from said polymeric material and said raceways are coated with said diamond-like coating.

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A chain for a roller chain conveyor comprising:

20       a male link;  
            a female link mounted to said male link by a connector member, said connector member including a shaft, said shaft being coated with a diamond-like coating;

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a roller rotatably mounted to said connector member with said male link and  
said female link; and

a polymeric bushing fitted within said roller, said bushing surrounding said  
shaft, such that said coating directly interfaces with said bushing.

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The chain of claim 34 wherein said bushing includes an end portion protruding  
axially from said roller, said male link including a plate defining a void fitted over said end  
portion of said bushing.

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The chain of claim 35 wherein said diamond-like coating is a thin, carbon film  
coating.

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The chain of claim 36 wherein- said bushing is manufactured from a polymeric  
material containing strength and rigidity enhancing additives.

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The chain of claim 36 wherein said bushing is manufactured from a nylon  
containing Molybdenum disulphide.

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